

Radiation Tolerant 802.16 Wireless Network, Phase I

Completed Technology Project (2009 - 2009)



Project Introduction

Exploration of planetary surfaces will require a communication architecture that supports operational capabilities in which fixed and mobile assets on the planetary surface can communicate seamlessly and securely. Aeronix understands the issues and believes that it can leverage its knowledge and expertise in its military IEEE-802.16 products towards a space qualified solution. Aeronix is currently developing two technologies that will be directly leveraged. A 5.8GHz 802.16 based radio developed military wireless communication terrestrial applications. The radio is designed to support 20 nodes providing 40Mbps using omni-directional antennas. This is a fully reconfigurable product employing a DSP to configure re-configurable FPGA logic. The development of a smaller 2.4GHz 802.16 based radio for UAV applications. Aeronix is currently fabricating evaluation units that are approximately 10"3 intended video and audio applications.

Anticipated Benefits

Potential NASA Commercial Applications: Potential NASA Non-Commercial applications include spaced-based wireless networks, lunar-based wireless networks, and Mars-based wireless networks. Usage models include point-to-multipoint and Mesh networks for communication between base stations, mobile rovers, mobile humans, and sensors. Equipments supported via this SBIR include base station access points, subscriber stations, wireless bridges, and wireless NICs for radiation environments. NASA's technology taxonomy has been developed by the SBIR-STTR program to disseminate awareness of proposed and awarded R/R&D in the agency. It is a listing of over 100 technologies, sorted into broad categories, of interest to NASA.



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Wireless Network, Phase I

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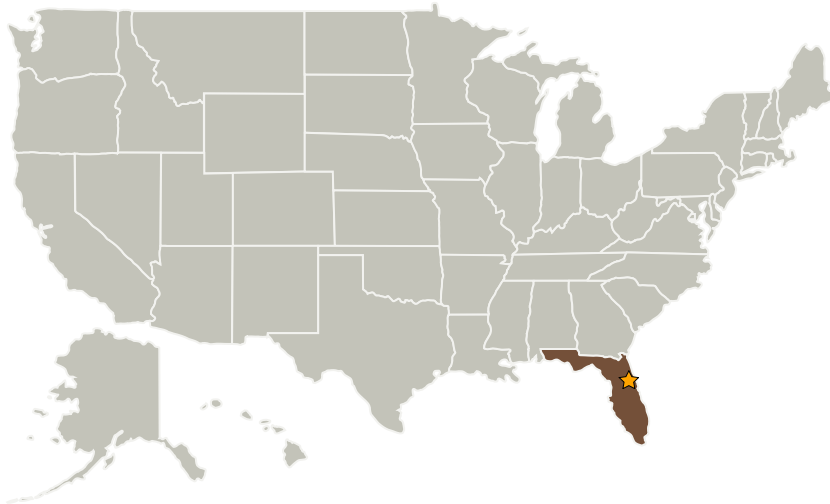
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Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
Aeronix, Inc.	Supporting Organization	Industry	Melbourne, Florida

Primary U.S. Work Locations

Florida

Project Transitions

January 2009: Project Start

July 2009: Closed out

Closeout Summary: Radiation Tolerant 802.16 Wireless Network, Phase I Project Image

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Kennedy Space Center (KSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

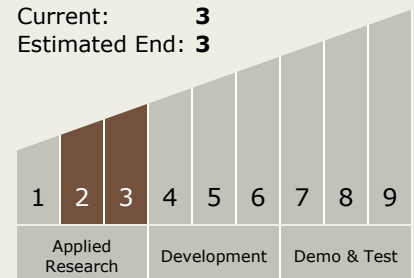
Carlos Torrez

Principal Investigator:

Steve Iezzi

Technology Maturity (TRL)

Start: **2**
 Current: **3**
 Estimated End: **3**





Technology Areas

Primary:

- TX10 Autonomous Systems
 - └ TX10.1 Situational and Self Awareness
 - └ TX10.1.1 Sensing and Perception for Autonomous Systems